UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,555	08/22/2003	Ali Sazegari	P2807-828	8696

21839 7590 04/10/2007		EXAMINER
BUCHANAN, INGERSOLL & ROONEY PC		NGO, CHUONG D
POST OFFICE BOX 1404		
ALEXANDRIA, VA 22313-1404	ART UNIT	PAPER NUMBER
	2193	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

> A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
> - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
> - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
> - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>08 January 2007</u>.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1,4-9,16,18,19 and 21-28</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) <u>18 and 19</u> is/are allowed.

6) ☒ Claim(s) <u>1,4-9,16 and 21-28</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>22 August 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1,4-9 and 21-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1,4-9 and 24-27 are directed to a computer implemented method of calculation where the inputs are numbers and the results are also numbers. Claims 21-23 and 28 are directed to a computer program stored in a computer readable storage medium for implementing the method. In order for a claimed invention that is directed to such a computer implemented method of calculation, or a computer program stored in a computer readable storage for implementing a computation to be statutory, the claimed invention must accomplish a practical application. That is the claimed invention must transform an article or physical object to a different state or thing, or produce a useful, concrete and tangible result. State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Also see "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility", OG Notices: 22 November 2005. It is clear from claims 1,4-9 and 21-28 that the claims merely involves calculations and manipulations of data in performing computations. The claimed invention does not result in a physical transformation. The inputs are numbers and the outputs are also numbers. The result of the invention is merely numerical values without a practical application recited in the claims that makes the result useful, concrete and tangible. The mere recitation in the claims that the input and output are input and output value for a media signal does not constitute any practical application for the invention. The result produced by the claimed invention is clearly a mere value that approximates a mathematical function of an input value. Therefore, the claimed

invention is directed to non-statutory subject matter as the claims fail to accomplish a practical

application.

2.   Claims 1,4,24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Simanapalli et al. (6,002,726) in view of Noetzel (5,068,816) and further in view of Cho

(6,931,426).

        Simanapalli et al. discloses in col. 4, lines 35-45 a Chebyshev minimax polynomial

approximation of a power function x^{-1} but does not specifically disclose how to perform a

polynomial calculation. Noetzel disclose in figure 1 a polynomial calculation in a piecewise

manner by storing sets of coefficients for a plurality of intervals in memory (9,11,13,15), and in

response to receipt of an input data value (5), retrieving the stored coefficients for a

corresponding interval and evaluating (46) the polynomial with the input data value to generate

an output value (44) as claimed. It would have been obvious to person of ordinary skill in the art

to perform the Chebyshev minimax polynomial approximation of Simanapalli et al. by the

calculation as taught by Noetzel in order to quickly evaluate a function (see col.2, lines 47-50).

It is further noted that the combination of Simanapalli et al and Noetzel does not discloses the

length of each interval being individually defined as recited in the claims. However, Cho

discloses in figure 3 an individual determination for each interval of an input range so that an

approximation of a function over an interval has an error less than a predetermined threshold (E)

for all of the intervals. Thus, it would have been obvious to a person of ordinary skill in the art

to individually determine the length of each interval as taught by Cho in the combined references

of Simanapalli et al and Noetzel in order to reduce approximation error while keeping the size

of the memory to a minimum (see Cho, Col 1, line 46-54). Further, the recitations in claims 1, 24 and 25 that the input and output data values are for a display or audio signals would have been an obvious fields of use or application to person of ordinary skill in art.

3.   Claims 5,6,8,16,21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined references of Simanapalli et al. (6,002,726), Noetzel (5,068,816), and Cho (6,931,426) as applied to claims 1-4 above, and further in view of Budge (2003/0195907).

It is noted that the combination of Simanapalli et al., Noetzel and Cho does not specifically disclose a polynomial calculation in a vector processor as claimed. However, Budge discloses in paragraph [0043], lines 5-14, that polynomial calculation is a good fit for vector (SIMD) processor. It would have been obvious to a person of ordinary skill in the art to implement the polynomial calculation of the combination of references by a vector processor as suggested by Budge in order increase the speed of processing.

4.   Claims 18 and 19 are allowed.

5.   Applicant's arguments filed 01/08/2007 have been fully considered but they are not persuasive.

Regarding the rejection under 35 USC 101, it is respectfully submitted that the mere recitation in the claims that the input and output are input and output values for a media signal does not constitute any practical application for the invention. the invention as now claimed still does not transform an article or physical object to a different state or thing, and the result produced by the

claimed invention is still a mere value that approximates a mathematical function of an input value. Therefore, the claimed invention is directed to non-statutory subject matter as the claims fail to accomplish a practical application.

Applicant's arguments with respect to the rejection under 35 USC 103 have been considered but are moot in view of the new ground(s) of rejection.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong D. Ngo whose telephone number is (571) 272-3731. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Chuong D Ngo
Primary Examiner
Art Unit 2193

03/29/2007